

REMARKS

In the Office Action, dated January 29, 2007, the Examiner viewed the claims as lacking unity of invention and divided the claims into Groups 1-13. In particular, the Examiner presented the following division of Claims 1-45:

Claims 1 and 2 were considered to link Group 1 (Claims 3-16) and Group 2 (Claims 17-21) with respect to the claimed method of identifying a compound that is an inhibitor of mitosis

Claim 22 was considered to link Group 3 (Claims 23-29) using activated Nek6, Group 4 (Claims 30-34) using Nek6, Group 5 (Claims 23-29) using activated Nek7, and Group 6 (Claims 30-34) using Nek7, in the claimed method of identifying a compound that is an inhibitor of mitosis

Group 7 (Claims 35-37) involving the level of Nercc1 protein in the claimed method of diagnosing a cancerous or potentially cancerous state

Group 8 (Claims 35-37) involving the level of Nek6 protein in the claimed method of diagnosing a cancerous or potentially cancerous state

Group 9 (Claims 35-37) involving the level of Nek7 protein in the claimed method of diagnosing a cancerous or potentially cancerous state

Group 10 (Claims 35-37) involving the level of Nercc1 kinase activity in the claimed method of diagnosing a cancerous or potentially cancerous state

Group 11 (Claims 35-37) involving the level of Nek6 kinase activity in the claimed method of diagnosing a cancerous or potentially cancerous state

Group 12 (Claims 35-37) involving the level of Nek7 kinase activity in the claimed method of diagnosing a cancerous or potentially cancerous state

Group 13 (Claims 38-45) regarding a mutant variant Nercc1 protein or fusion protein thereof

The Examiner further stated that upon allowance of the linking claim(s), the restriction requirement as to the linked inventions shall be withdrawn and any claim(s) depending from or otherwise including the limitations of the allowable linking claim(s) will be entitled to examination in the instant application.

In the Office Action, the Examiner asserts that the above division and groupings of the claims are necessary because the claims do not relate to a single general inventive concept under PCT Rule 13.1 and that the claims lack the same or corresponding special technical feature required by PCT Rule 13.2. Applicants respectfully traverse the Examiner's restriction requirement as the claims are in fact so linked as to form a single general inventive concept consistent with PCT Rule 13.1 and possess a common special technical feature that fulfills the requirement for unity of invention in accordance with PCT Rule 13.2.

In particular, Applicants' claimed invention is based on the discovery that Nercc1 kinase specifically phosphorylates and thereby activates Nek6 (or its related homolog Nek7) at a critical step in a kinase cascade that regulates mitotic progression of eukaryotic cells. This is the special technical feature that runs through all of the claims of the instant application and defines a contribution to the prior art. Thus, the *specific point of action* in the regulation of mitosis can be known for a result (e.g., an inhibitor) that is obtained using a method according to Applicants' invention. This feature of the claimed invention is in stark contrast to the simple identification of one or more kinase proteins such as a mouse Nek6 that is disclosed in PCT publication No. WO 99/66051 cited by the Examiner, and the mere speculation that a new kinase is involved in regulation of the cell cycle. The WO 99/66051 publication does not provide the art with any teaching or suggestion of the identity of the Nercc1/Nek6 (or Nek7) step in a kinase cascade that regulates mitotic progression, nor does the publication teach how one might determine whether a compound may be an inhibitor of this specific Nercc1-mediated regulatory step. Accordingly, all of the claims of the instant application are related by a common special technical feature (i.e., they all rely on the newly discovered interactions between Nercc1 and other kinases as critical and inhibitable waypoints in the process of mitosis). Moreover, that common technical feature defines a new and useful contribution over the prior art as required by PCT Rules 13.1 and 13.2. Thus, the requirement for unity of invention is fulfilled and division of the claims is improper.

Applicants respectfully submit that in view of the foregoing remarks, it is clear that all of the claims possess a common special technical feature that is of the sort that is properly viewed as relating to a single general inventive concept to meet the requirement of unity of invention according to PCT Rules 13.1 and 13.2. Therefore, Applicants respectfully request that the

Examiner reconsider and withdraw the division of the claims into Groups 1-13 and the accompanying election of species.

Applicants believe that dividing the claims into Groups 1-13 and requiring an election of species as set forth in the Office Action are improper and uncalled for under PCT Rules 13.1 and 13.2. Thus, Applicants do not acquiesce in, but respectfully traverse, the restriction requirement and accompanying election of species. Nevertheless, in order to be fully responsive to the Office Action, and to avoid abandonment, Applicants provisionally elect examination of the claims of Group 1, i.e., Claims 3-16, and linking Claim 1, for examination. In addition, Applicants provisionally elect the following species identified as patentably distinct by the Examiner, from the artificial hierarchy set forth at pages 7-9 of the Office Action for examination of Group 1 claims:

Applicants elect a non-activated Nercc1 kinase as the form of Nercc1 kinase protein,

Applicants elect a non-activated Nek7 kinase or fusion protein thereof as the form of kinase substrate,

Applicants elect detection using an antibody as the method for determining the level of the phosphorylated form of the kinase substrate,

Applicants elect phosphorylated Nek7 kinase or fusion protein thereof as the form of the phosphorylated kinase substrate, and

Applicants elect a microtiter plate as the species of vessel used in the method of the elected Group 1 claims.

It is unclear whether the Examiner considers subject matter specified in Claim 2 as related to a separate invention or possibly as being the same species as outlined at A.(1) of the artificial hierarchy set forth at page 7 of the Office Action. Accordingly, it is not clear to Applicants whether or not Claim 2 also needs to be provisionally elected for this response to be complete. Applicants believe that the Examiner intended Claim 2 to be included with the other claims of Group 1 and therefore request, for completeness, that Claim 2 be included with their provisional election of the claims of Group 1.

The foregoing elections of restriction group and of species are made with traverse. Applicants note that no reasoning is presented in the Office Action to support the finding of distinctness between the listed species, and therefore Applicants cannot present any reasoning to argue against the multi-leveled election requirements, other than to express their traversal.

Respectfully submitted,



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